

# Bacteria-Impaired Waters TMDL Project I for Beaches & Creeks

Public Workshop

March 9, 2004

# Overview of Bacteria Impaired Waters TMDL Projects

- Bacteria Impaired Waters TMDL Project I for Beaches and Creeks (Bacti I)
- Bacteria Impaired Waters TMDL Project II for Bays and Lagoons (Bacti II)

# Overview Information

- Water Quality Objectives and TMDLs
  - Key concepts
- CWA Section 303(d) listing and de-listing of bacteria impaired waters
- Structure of today's meetings
  - Public Workshop
  - Stakeholder Advisory Group Meeting

# Scope of TMDL Projects

## Project I

- 18 Waterbodies
- Open Beaches
- Creeks
- Regional Board Adoption  
Summer 05

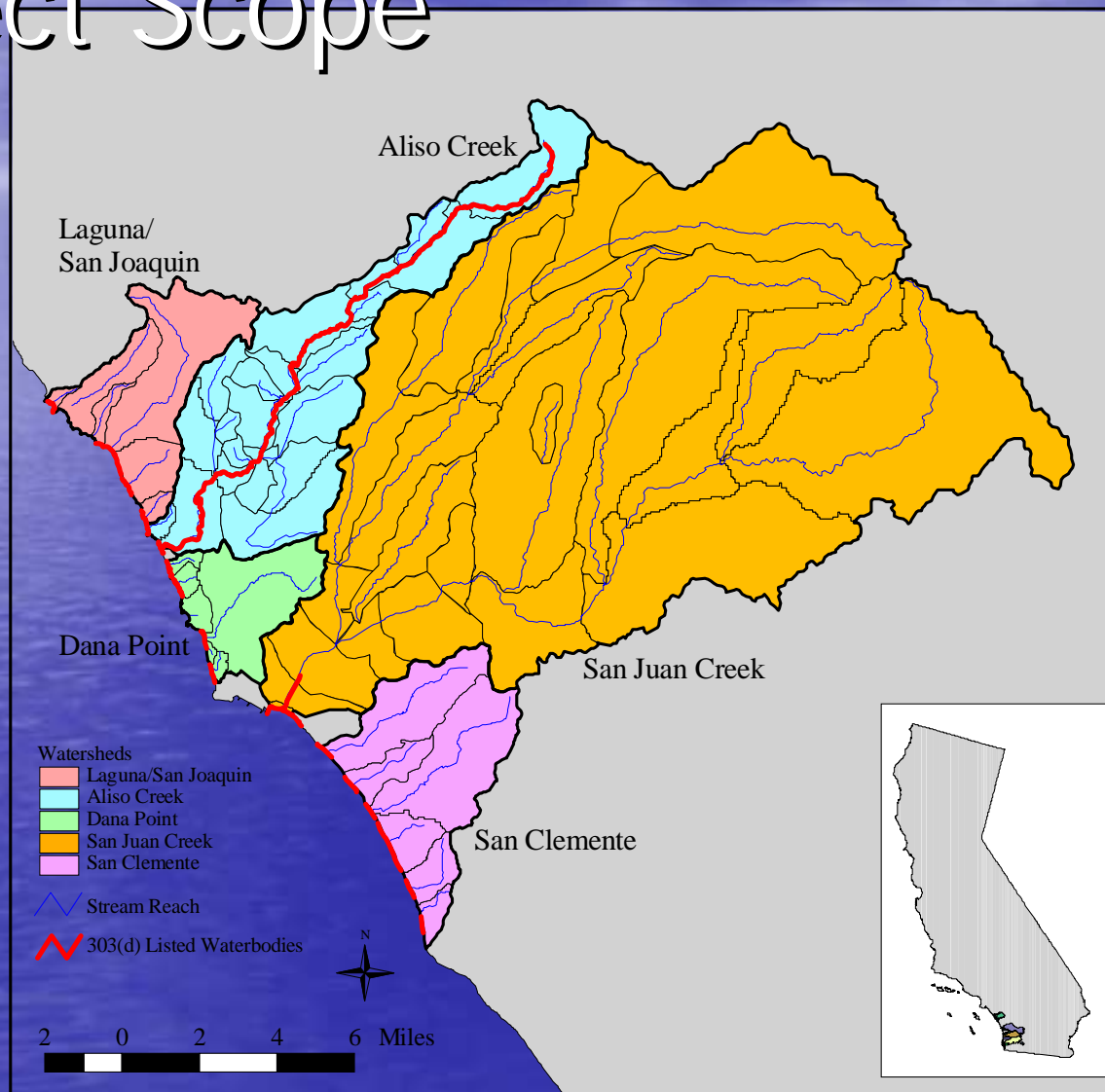
## Project II

- 20 Waterbodies
- Bays, Lagoons
- Adjacent Beaches
- Regional Board Adoption  
Summer 06

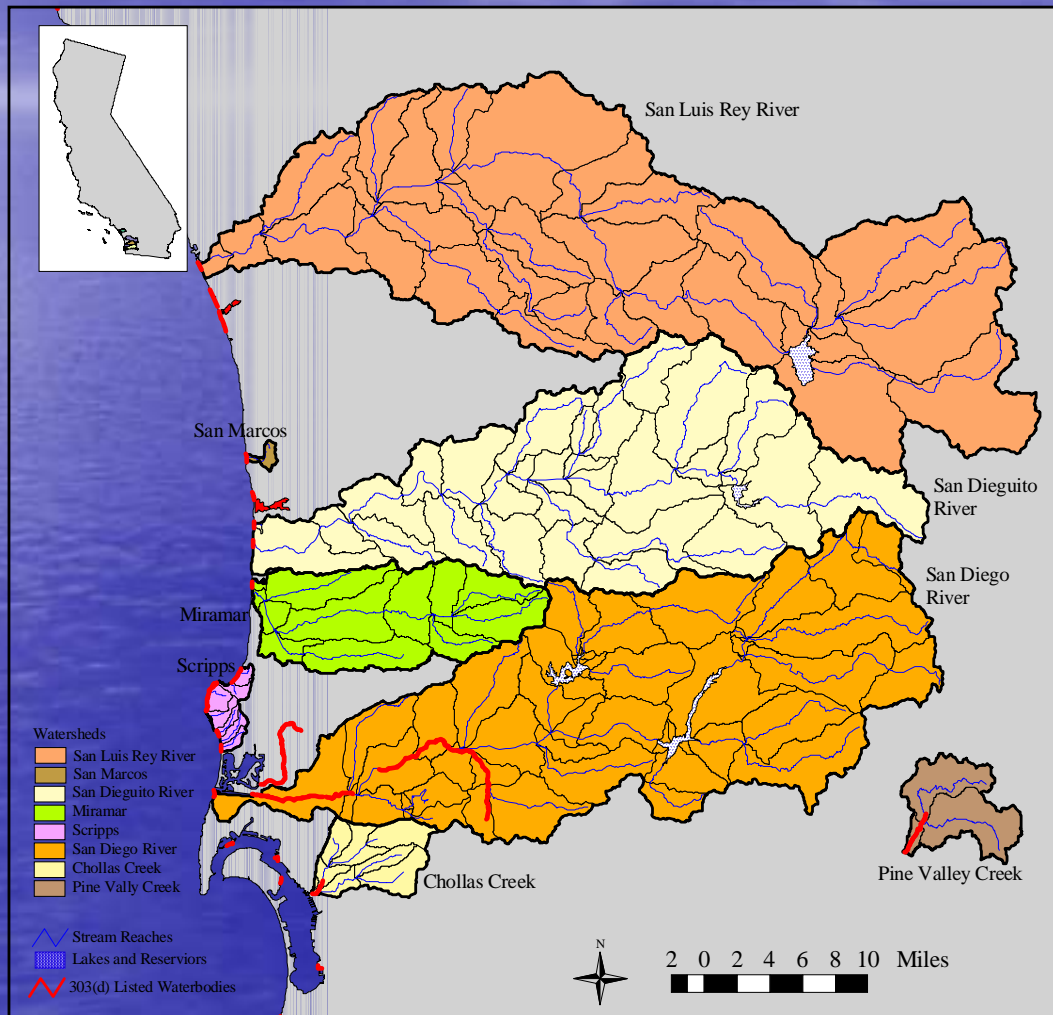
# Technical TMDL Overview

- Two proposed methods
- Natural sources accounted for
- Sources of bacteria associated with land-use
- Wasteload allocations achieved by municipalities through MS4 permit

# Project Scope



# Project Scope



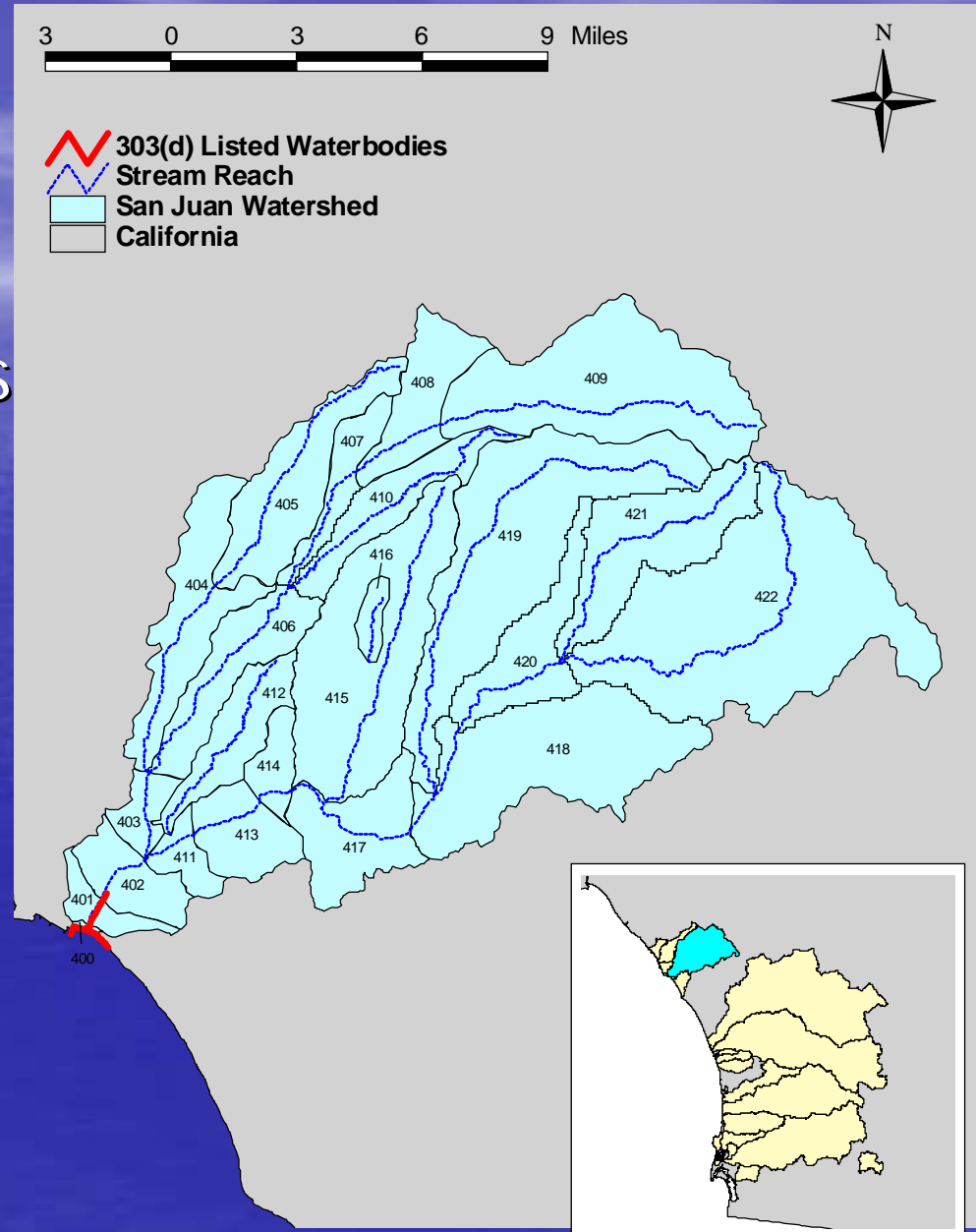
# Water Quality Objectives: Ocean Waters, Inland/Ground Waters; Bays, Estuaries, Coastal Lagoons

Concentrations given per 100 mL

Beneficial Use	Indicator	Instantaneous Maximum	Median (30-day)	Geometric Mean	10% Limit	20% Limit
REC-1	Total	10,000				1000
REC-1	Fecal			200	400	
SHELL	Total		70		230	

# Critical Point

- Calculations of TMDLs at mouth of watershed, or critical point



# Two Models for TMDL Calculation

- Dry Weather
- Wet Weather

# Dry Weather Model

- Empirical model unique to San Diego Region
- Uses data from Orange County/San Diego County creeks for configuration
- Correlates land-use/flow  
land-use/bacteria levels

# Wet-Weather Model

- Watershed model
- Model used by other Regional Boards in Southern California
- Calculates TMDLs based on
  - Interim Numeric Targets
  - Final Numeric Targets

# Source Analysis

- Model used to quantify relative sources
- Looked at nonpoint, point sources
- Greatest source: urban runoff

# Numeric Targets: Interim

- Uses *Reference Approach*; allows for certain number of allowable exceedance frequencies of numeric WQO
  - First used by LA Regional Board
  - Same reference watershed used
  - San Diego watershed desirable
  - Protective of REC-1 Beneficial Use

# Numeric Targets: Final

- Basin Plan Water Quality Objectives
  - Protective of SHELL Beneficial Use in addition to REC-1

# TMDLs and WLA

- TMDLs, wasteload allocations, required load reductions in Tables 7-1 thru 7-6
- Wasteload allocations accomplished by municipalities via amended MS4 permit

# Tentative Project Schedule

- Draft Technical TMDL – February 2004
- Formal Peer Review – Spring/Summer 2004
- Begin development Implementation Plan – Summer 2004
- Regional Board Public Hearing – Summer 2005

# Consideration for Strategy Development

- Method of transport vary between wet and dry conditions
- Separate watershed-based approaches required to address each condition
- Critical point for TMDL development at the mouth of watersheds draining to beaches
  - Discharge considered critical point, with dilution occurring at increased distance from the discharge point
  - Protection at the point of discharge ensures protection in the surf zone

# Dry Weather Approach

- Watershed model of San Diego Region
  - Bacteria loads estimated using empirical model based on data analyses
  - Streams modeled using simplified plug flow model
  - Simulated a steady-state flows and bacteria levels
- TMDLs developed based on critical points at mouth of streams and point of discharge at beaches
- Reductions based on direct comparison of model-predicted bacteria levels to TMDL targets

# Dry Weather Approach

- TMDL targets based on REC-1 and SHELL 30-day geometric mean water quality objectives
  - No allowable exceedances based on reference conditions
- Phased TMDLs to provide opportunity for further study
  - Interim period based on REC-1
  - TMDLs based in both REC-1 and SHELL, where applicable

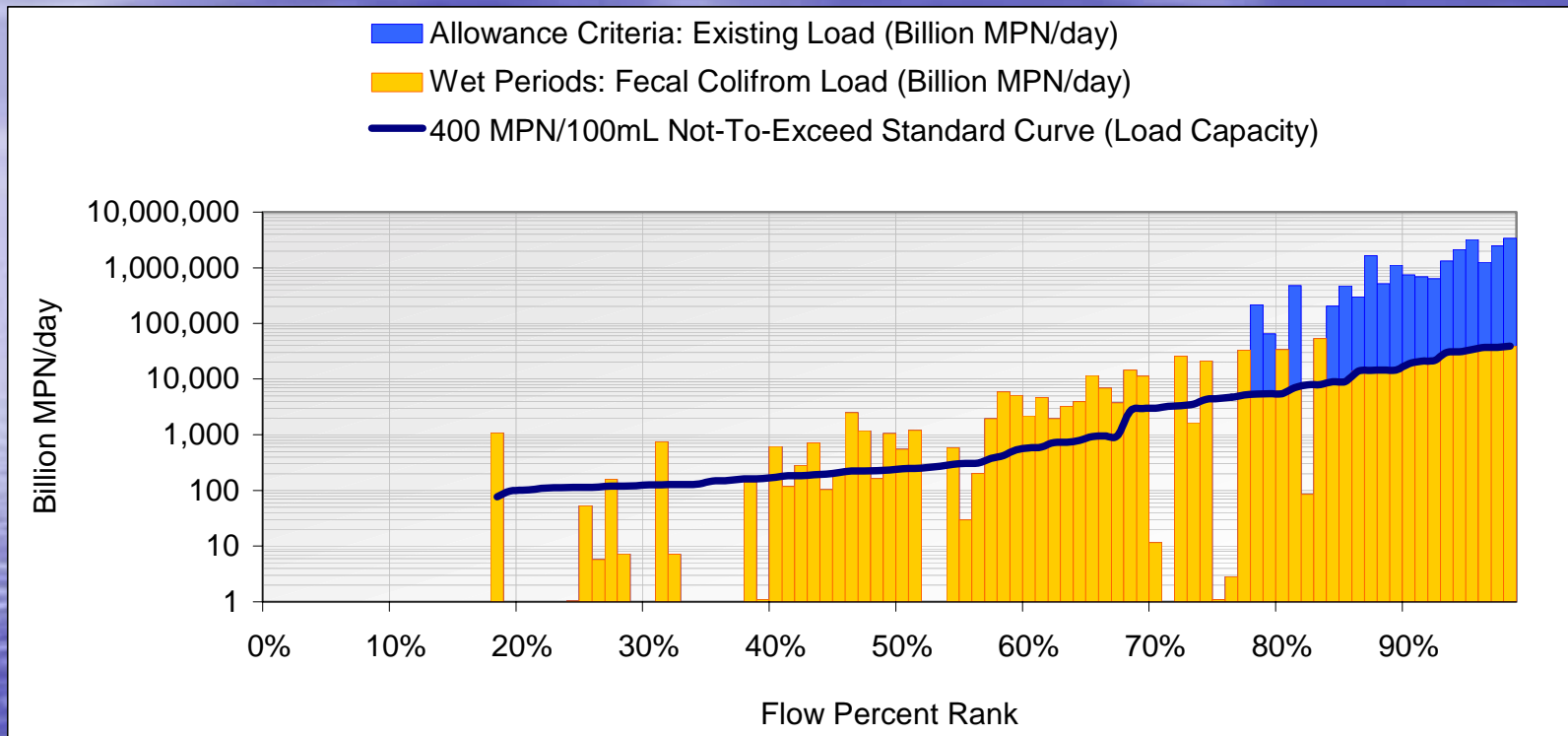
# Wet Weather Approach

- Watershed model of San Diego region to address TMDLs for impaired streams and beaches
  - Simulates build-up, washoff of bacteria
  - Beaches addressed using critical points at mouth of streams
- TMDL targets based on REC-1 and SHELL single sample water quality objectives
- Simulated a critical wet year (1993) for estimation of daily bacteria loads for each watershed impacting impaired waterbodies

# Wet Weather Approach

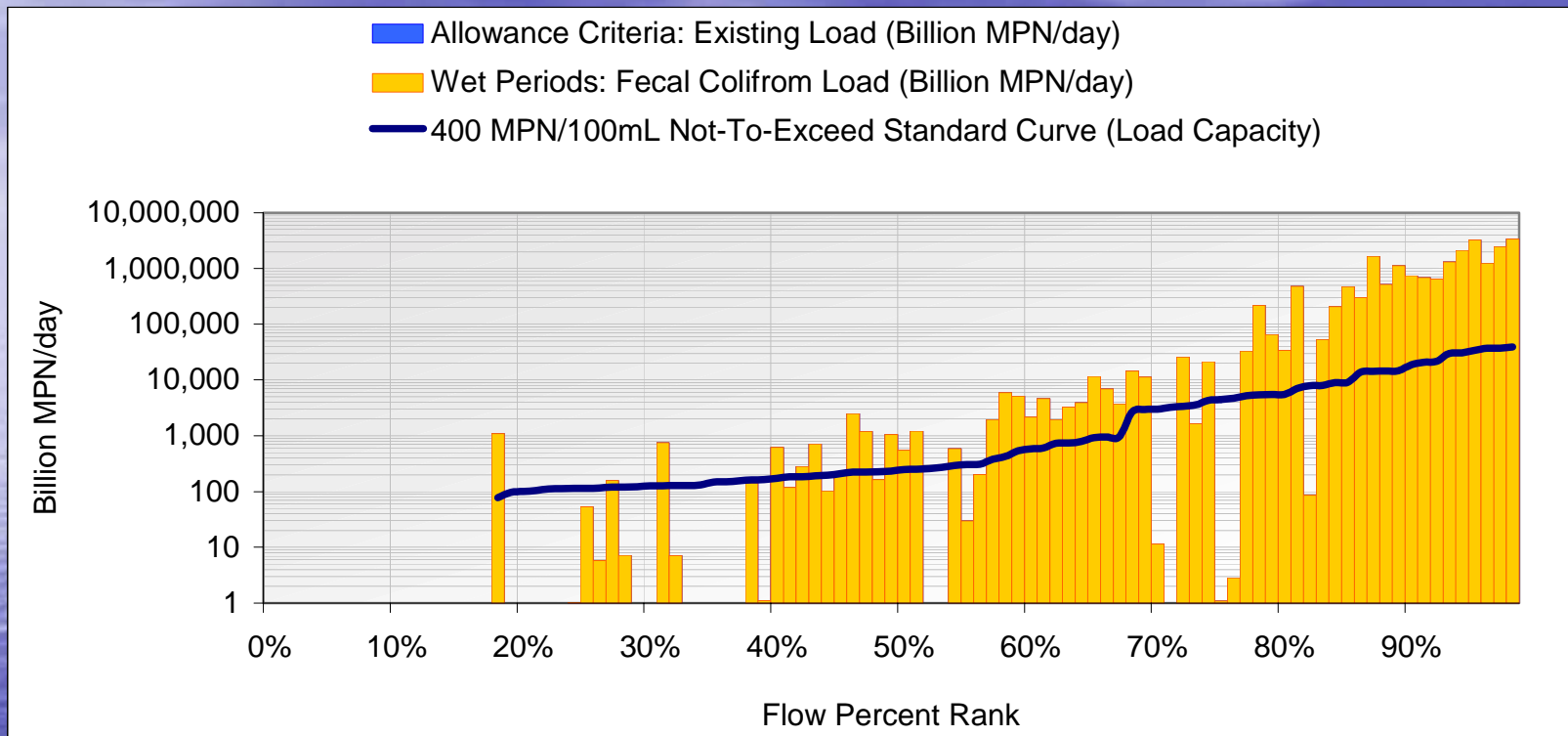
- Daily model-predicted loads compared to TMDLs for calculation of load reductions
- Phased TMDLs to provide opportunity for further study
  - Interim period based on LA reference conditions and REC-1
  - TMDLs based in both REC-1 and SHELL, where applicable

# Wet Weather Loading Analysis – Interim Reductions



Fecal Coliform Loading Summary	Value	Units
Waste Load Allocation (Load capacity below WQO curve)	467,420	Billion MPN/Year
Total Load for Existing Condition	21,283,828	Billion MPN/Year
Total Load Using Allowance Criteria	713,335	Billion MPN/Year
Non-allowable Exceedance Load	282,742	Billion MPN/Year
Required Annual Load Reduction	39.6%	Percentage
Wet Day Exceedances	50	None
Allowable Wet Day Exceedances	19	None
Excess Wet Day Exceedances	31	None

# Wet Weather Loading Analysis – TMDL Reductions



Fecal Coliform Loading Summary	Value	Units
Waste Load Allocation (Load capacity below WQO curve)	467,420	Billion MPN/Year
Total Load for Existing Condition	21,283,828	Billion MPN/Year
Total Load Using Allowance Criteria	21,283,828	Billion MPN/Year
Non-allowable Exceedance Load	20,853,235	Billion MPN/Year
Required Annual Load Reduction	98.0%	Percentage
Wet Day Exceedances	50	None
Allowable Wet Day Exceedances	0	None
Excess Wet Day Exceedances	50	None

# Stakeholder Advisory Group

- Purpose and Structure
- Member Participation

# SAG Membership

- San Diego Bay watersheds
- San Diego/Mission Bay watersheds
- Carlsbad/San Dieguito watersheds
- Santa Margarita River/San Luis Rey River watersheds
- San Juan watersheds

# SAG Membership (cont'd)

- Environmental community
- Academic and Research
- Public at large
- Caltrans
- Agriculture
- POTWs
- Business and Industry

# Project Schedule

Action	Completion Date
Draft Technical Report available	February 24, 2004
Public workshop/SAG meeting	March 9, 2004
Written informal comments due	March 23, 2004
Formal peer review	Spring/summer 2004
Development of IP	Spring/Summer 2004
Regional Board Hearing	Summer 2005

# Closing Remarks

- Written comments
  - March 23, 2004
- Next steps
- Thank you!